

CLAIMS

1. A semiconductor memory card attachable and removable to and from electronic equipment, comprising:

a first rewritable nonvolatile memory;

first access control unit for controlling access by the electronic equipment to the first nonvolatile memory;

communication unit for controlling access by the electronic equipment to a storage device on a network which has a second rewritable nonvolatile memory;

second access control unit for controlling access by the electronic equipment to the second nonvolatile memory; and

space unification unit for forming a virtual unified memory space including the first nonvolatile memory and the second nonvolatile memory.

2. A semiconductor memory card according to claim 1, further comprising contention determination unit for determining whether data to be accessed by the second access control unit is being written or read by other semiconductor cards, and for starting, stopping, or delaying writing and/or reading by the second access control unit based on the determination result.

3. A semiconductor memory card according to claim 1, wherein the communication unit stores address of the storage device on the network.

4. A semiconductor memory card according to claim 3, wherein the communication unit accesses the storage device using identification information of the semiconductor memory card.

5. A semiconductor memory card according to claim 1, further comprising:

encoding unit for generating an encoding key for encoding the data and for encoding

the data with the encoding key; and

authentication unit for verifying validity of the electronic equipment, wherein:

the first nonvolatile memory includes a first authentication area and a first non-authentication area which are predetermined storage areas;

the first access unit controls access by the electronic equipment to the first non-authentication area and permits the access by the electronic equipment to the first authentication area when the authentication unit authenticates the validity of the electronic equipment;

the second access unit controls access by the electronic equipment to second non-authentication area which is a predetermined storage area included in the second nonvolatile memory; and

the space unification unit allocates address of the second non-authentication area in the second nonvolatile memory to the data encoded with the encoding key, and allocates the address of the first authentication area in the first nonvolatile memory to the encoding key.

6. A semiconductor memory card according to claim 5, wherein the space unification unit determines which of the addresses of the first non-authentication area in the first nonvolatile memory and the second non-authentication area in the second nonvolatile memory is allocated to the data encoded with the encoding key, and allocates the address to the data in accordance with the determination.

7. A semiconductor memory card according to claim 5, wherein the second access unit permits access by the electronic equipment to the second authentication area which is a predetermined storage area in the second nonvolatile memory when the authentication unit authenticates validity of the electronic equipment.

8. A semiconductor memory card according to claim 1, wherein:

the first nonvolatile memory includes a management area;

the space unification unit allocates address in the first nonvolatile memory or the second nonvolatile memory to data, and writes data identifier for identifying the data into the management area with being associated with the allocated address;

the first access unit and the second access unit receives a request for writing the data to the first nonvolatile memory or the second nonvolatile memory, and write the data to a storage area corresponding to the address allocated to the data.

9. A semiconductor memory card according to claim 8, wherein the second access unit receives a request for reading data, reads address of the second nonvolatile memory on which the data is written from the management area, and accesses the read out address via the communication unit to read out the data.

10. A semiconductor memory card according to claim 8, further comprising encoding unit for generating an encoding key for encoding or decoding the data, and for encoding the data with the encoding key, wherein:

the second access unit reads out address of the second non-authentication area on which the data encoded with the encoding key is written from the management area, and accesses the address of the second non-authentication area to read out the encoded data via the communication unit; and

the first access unit reads out address of the first non-authentication area on which the encoding key is written from the management area, and accesses the address of the first non-authentication area to read out the encoding key.

11. A memory space management method, comprising:

a first access control step for controlling access by electronic equipment to a first rewritable nonvolatile memory;

a communication step for controlling access by the electronic equipment to a storage device on a network which has a second rewritable nonvolatile memory;

a second access control step for controlling access by electronic equipment to the second nonvolatile memory; and

a space unification step for forming a virtual unified memory space including the first nonvolatile memory and the second nonvolatile memory.

12. A memory space management program which is recorded on a semiconductor memory card which is attachable and removable to and from electronic equipment and includes a computer, causing the computer to function as:

first access control unit for controlling access by electronic equipment to a first rewritable nonvolatile memory;

communication unit for controlling access by the electronic equipment to a storage device on a network which has a second rewritable nonvolatile memory;

second access control unit for controlling access by electronic equipment to the second nonvolatile memory; and

space unification unit for forming a virtual unified memory space including the first nonvolatile memory and the second nonvolatile memory.